

Application No. 09/720,102
Inventor: van BREMPT

REMARKS

This Amendment is submitted in response to the Office Action dated September 26, 2003. Claims 1-18 were previously pending. New claims 19-20 have been added. Claims 1, 12, 13 and 18 are now amended. Accordingly, claims 1-20 stand for reconsideration. Careful reconsideration of the present application in view of the foregoing amendments and the following remarks is most respectfully requested.

Amendments to the Specification:

The specification has been amended to correct a minor grammatical and spelling informalities. No new matter has been added.

Rejections Under 35 U.S.C. 112:

In paragraphs 1-2, claims 1-18 were rejected under 35 U.S.C. 112, Second Paragraph, as allegedly being indefinite. These rejections are most respectfully traversed as follows.

First, it is most respectfully submitted that the claims as now amended are proper under this section of the U.S. code. In that regard, while it is submitted that the original claims were already clear, the claims have been amended to be even clearer. These

Application No. 09/720,102
Inventor: van BREMPT

amendments should, thus, not limit the fullest range of protection under the doctrine of equivalents upon issuance.

Second, it is most respectfully submitted that the language "other desired" solid raw materials is proper under this section of the U.S. code. It is respectfully submitted that, while broad, this language is clear based on the present disclosure. See, for example, some illustrative other materials set forth, e.g., claims 13, 15 and 16.

Withdrawal of these rejections is most respectfully requested.

Rejections Based On References:

JP 74049116

In paragraph 4, claim 1 was rejected under 35 U.S.C. 102 over JP 74049116.

This rejection is most respectfully traversed as follows.

As discussed in this reference (e.g., as set forth in the abstract), this document involves granulating a composite fertilizer mixture in a molten state. In contrast to the cited document, claim 1 recites, among other things, a step of "feeding the partly molten material" obtained, e.g., in the melter "to a granulator." Therefore, claim 1 is clearly not anticipated or suggested by this document.

Withdrawal of this rejection is respectfully requested.

Application No. 09/720,102
Inventor: van BREMPT

SU 304,824

In paragraph 5, claims 1 and 3 were rejected under 35 U.S.C. 102 over SU 304,824. These rejections are most respectfully traversed as follows.

As discussed in this reference (e.g., as set forth in the abstract), this document involves mixing molten ammonium phosphate with a melt of urea whereafter the melt is granulated. In contrast to this document, claim 1 recites, among other things, a step of "providing a solid feed material comprising at least solid urea" and "feeding the partly molten material" obtained, e.g., in the melter "to a granulator." Therefore, claim 1 is clearly not anticipated or suggested by this document.

Claim 3 depends from claim 1 and, thus, is also clearly not anticipated by this document. Claim 3 also recites additional features that are not disclosed in the cited reference.

Withdrawal of these rejections is respectfully requested.

US 4,398,936

In paragraph 6, claims 1, 7 and 13 were rejected under 35 U.S.C. 102 over US 4,398,936. These rejections are most respectfully traversed as follows.

This document involves adding a potassium salt to a liquid melt or an aqueous solution containing ammonium nitrate and ammonium phosphate and granulating the mixture (see, e.g., claim 1). The document does not teach or suggest, among other things, fertilizers comprising urea. In contrast to the cited document, claim 1 recites,

Application No. 09/720,102
Inventor: van BREMPT

among other things, a step of "feeding the partly molten material" having the urea obtained, e.g., in the melter "to a granulator." Therefore, claim 1 is clearly not anticipated or suggested by this document.

Claims 7 and 13 depend from claim 1 and, thus, are also clearly not anticipated by this document. Claims 7 and 13 also recite additional features that are not disclosed in the cited reference.

Withdrawal of these rejections is respectfully requested.

JP 07157385

In paragraph 7, claims 1, 13 and 14 were rejected under 35 U.S.C. 102 over JP 07157385. These rejections are most respectfully traversed as follows.

This document involves bringing a fertilizer mixture comprising urea (5-30%) into a molten state by the frictional heat generated in the granulating machine without performing any external heating (see, e.g., Abstract on page 1 of the translation). According to this document, a temperature of 100 - 400°C can be obtained by using compacting machines (see, e.g., last paragraph on page 3 of the translation). However, it is most respectfully submitted that these should look the same – according to the Applicant's experience – the frictional heat generated during compaction of normal fertilizer raw materials provide temperatures of at the most 70°C. The pressure and frictional heat formed during compaction are dependent on the used raw materials.

Application No. 09/720,102
Inventor: van BREMPT

Obviously, this document requires very particular raw materials, such as calcium cyanamide making it possible to obtain the high temperatures.

Notably, this document does not teach or suggest, among other things, "providing a solid feed material comprising ... urea," "feeding the feed material ... into a melter for melting a ... portion thereof and keeping said portion in molten state to provide a partly molten material," and "feeding the partly molten material ... to a granulator." Therefore, claim 1 is not anticipated or suggested by this document.

Claims 13 depends from claim 1 and, thus, is also clearly not anticipated by this document. Claim 13 also recites additional features that are not disclosed in the cited reference. Claim 14 has been cancelled, without any prejudice to be applied. Some of the subject matter from claim 14 has been incorporated into claim 1.

Withdrawal of these rejections is respectfully requested.

GB 1462633

In paragraph 8, claims 1-3, 7, 13-14 and 17-18 were rejected under 35 U.S.C. 102 over GB 1462633. These rejections are most respectfully traversed as follows.

This document involves feeding molten urea to a granulation device (see, e.g., page 1, first column, lines 38-46, and claim 1). In contrast to this document, claim 1 recites, among other things, a step of "providing a solid feed material comprising at

Application No. 09/720,102
Inventor: van BREMPT

least **solid urea** and "feeding **the partly molten material**" obtained, e.g., in the melter "to a granulator." Therefore, claim 1 is clearly not anticipated by this document.

The other remaining claims rejected under this ground depend from claim 1 and, thus, are also clearly not anticipated by this document. These claims also recites additional features that are not disclosed in the cited reference.

Withdrawal of these rejections is respectfully requested.

GB 1159445

In paragraph 9, claims 1-2, 3, 7, 12-13 and 17-18 were rejected under 35 U.S.C. 102 over GB 1159445. These rejections are most respectfully traversed as follows.

This document involves a method of dry granulating fertilizers comprising subjecting substantially dry fertilizer ingredients in powder form to simultaneous agitation and heating in such a way and at such a temperature that "superficial softening" occurs (see, e.g., claim 1). In contrast to this document, claim 1 recites, among other things, a step of "feeding **the partly molten material**" **having the urea** obtained, e.g., in the melter "to a granulator." Therefore, claim 1 is clearly not anticipated or suggested by this document.

The other remaining claims rejected under this ground depend from claim 1 and, thus, are also clearly not anticipated or suggested by this document. These claims also recites additional features that are not disclosed in the cited reference.

Application No. 09/720,102
Inventor: van BREMPT

Withdrawal of these rejections is respectfully requested.

US 2,912,318

In paragraph 10, claims 1-3, 7, 13 and 17-[18] were rejected under 35 U.S.C. 102 over US 2,912,318. These rejections are most respectfully traversed as follows.

This document involves a process for producing a granular mixed fertilizer by adding solid calcium carbonate particles to molten ammonium nitrate in the presence of ammonium monohydrogen phosphate or potassium monohydrogen phosphate, and then solidifying the mixture and granulating the same (see, e.g., claim 1 and column 1, line 65 - column 2, line 5). This document does not teach or suggest, among other things, fertilizers comprising urea. In contrast to this document, claim 1 recites, among other things, a step of "feeding the partly molten material" having the urea obtained, e.g., in the melter "to a granulator." Therefore, claim 1 is clearly not anticipated or suggested by this document.

The other remaining claims rejected under this ground depend from claim 1 and, thus, are also clearly not anticipated or suggested by this document. These claims also recites additional features that are not disclosed in the cited reference.

Withdrawal of these rejections is respectfully requested.

Application No. 09/720,102
Inventor: van BREMPT

EP 0104705

In paragraph 11, claims 1-3, 7-13 and 17-18 were rejected under 35 U.S.C. 102 over EP 0104705. These rejections are most respectfully traversed as follows.

This document involves a process for preparing compound fertilizers containing ammonium nitrate and potassium chloride by mixing solid potassium chloride with an ammonium nitrate solution or melt and then granulating the mixture (see, e.g., claim 1). This document does not teach or suggest, among other things, fertilizers comprising urea. In contrast to this document, claim 1 recites, among other things, a step of "feeding the partly molten material" having the urea obtained, e.g., in the melter "to a granulator." Therefore, claim 1 is clearly not anticipated by this document.

The other remaining claims rejected under this ground depend from claim 1 and, thus, are also clearly not anticipated or suggested by this document. These claims also recites additional features that are not disclosed in the cited reference.

Withdrawal of these rejections is respectfully requested.

US 6,176,892

In paragraph 12, claims 1-3, 7, 12-13 and 18 were rejected under 35 U.S.C. 102 over US 6,176,892. These rejections are most respectfully traversed as follows.

Application No. 09/720,102
Inventor: van BREMPT

This document involves a process for the preparation of NK-fertilizers comprising melting calcium nitrate fertilizer and potassium nitrate to form a melt or suspension thereof, heating the melt or suspension to a temperature suitable for particulation, and particulating the heated melt or suspension to form a homogenous NK-fertilizer (see, e.g., column 3, lines 8-14). The particulation can be performed by prilling or by granulation of a melt or suspension (see, e.g., column 3, lines 20-23). This document does not teach or suggest, among other things, fertilizers comprising urea. In contrast to this document, claim 1 recites, among other things, a step of "feeding the partly molten material" having the urea obtained, e.g., in the melter "to a granulator."

Therefore, claim 1 is clearly not anticipated by this document.

The other remaining claims rejected under this ground depend from claim 1 and, thus, are also clearly not anticipated or suggested by this document. These claims also recites additional features that are not disclosed in the cited reference.

Withdrawal of these rejections is respectfully requested.

Rejections Under 35 U.S.C. 103:

In paragraphs 13-14, claims 4-6 and 14-16 were rejected under 35 U.S.C. 103 over GB 1462633 (discussed above) and EP 0104705 (discussed above) in view of US 5,676,729. These rejections are most respectfully traversed as follows.

Application No. 09/720,102
Inventor: van BREMPT

As set forth above, the GB 1462633 and EP 0104705 references do not teach or suggest the features recited in the claims. Furthermore, it should be apparent that the US 5,676,729 reference does not fulfill the deficiencies of these references in view of the foregoing. Accordingly, these claims should be allowable over the cited references.

Withdrawal of these rejections is respectfully requested.

Summary Remarks:

As illustrated above, it is most respectfully, but strongly-submitted that the cited documents do not disclose or suggest the combination of features recited in claim 1 including, among other things, "feeding the feed material or a part thereof into a melter for melting **a desired portion thereof**" and "feeding the **partly molten material** ... to a granulator." Thus, it is respectfully submitted that the claimed subject matter is novel and non-obvious over the cited documents.

In some embodiments of the present invention, the process can achieve notable unexpected results and advantages, such as, e.g., producing a very high quality product having superior physical properties as compared to commercial products. In some embodiments of the present invention, for example, properties of urea-containing fertilizers obtained by the process can include the following notable properties:

- **Granule strength** in the range of about 40 N (whereas corresponding commercial products typically have a granule strength of below 30N);

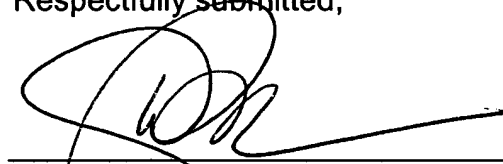
Application No. 09/720,102
Inventor: van BREMPT

- **Abrasion** of less than 1% (whereas corresponding commercial products have an abrasion of typically 5% or higher); and/or
- **Dusting** of a very low degree.

In the event that any fees are due in connection with this document, please charge our Deposit Account No. 02-2135. Should the Examiner desire to discuss any aspect of this case, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

By



Stephen B. Parker
Registration No. 36,631
Attorney for Applicants
ROTHWELL, FIGG, ERNST & MANBECK, p.c.
Suite 800, 1425 K Street, N.W.
Washington, D.C. 20005
Telephone: (202)783-6040

Attachment: Appendix

I:\data\clients\2530\2530-109.amd.wpd

APPENDIX

(Marked Up Copy Showing Deletions Bracketed And Additions Underlined).

Amendments to the Specification

Amend the last paragraph of page 6 as follows:

The invention is illustrated in and by the following examples. Additionally, the strength [strenght] of the product granules obtained in the following examples was checked after a 3 months' storage, and the strength [strenght] was found to be unchanged.

Amendments to the Claims

1. (Amended) A process for the preparation of compound fertilizer granules containing [at least two of the] plant nutrient[s] nitrogen[,] and at least one of the plant nutrients phosphorus and potassium, said process comprising the steps of:

providing a solid feed material comprising at least [one] solid urea fertilizer raw material and optionally recycle material,

feeding the feed material or a part thereof into a melter for melting a desired portion thereof and keeping said portion in molten state to provide a partly molten material,

Application No. 09/720,102
Inventor: van BREMPT

feeding the partly molten material and optionally other desired solid raw materials to a granulator to obtain a granulated product, and

cooling and optionally screening the granulated product to obtain dry compound fertilizer granules having a desired size distribution,

provided that no water or aqueous liquid is introduced into the process.

12. (Amended) A process according to claim 1, wherein the granulation temperature is in the range from 75°C to 125°C[, preferably from 80°C to 125°C].

13. (Amended) A process according to claim 1, wherein the fertilizer raw materials in addition to urea comprise of least one other material [are] selected from the group consisting of [urea,] diammonium phosphate (DAP), K_2SO_4 (SOP), monoammonium phosphate (MAP), potassium chloride (MOP), phosphate rock, single superphosphate (SSP), triple superphosphate (TSP), ammonium sulfate (AS) and ammonium chloride (AC).

18. (Amended) A process according to claim 1, wherein the moisture content of the dry compound fertilizer granules is below 0.6% by weight[, preferably below 0.3% by weight].